

MAQTQGTRRKVCYYYDGDVGNYYYGQGHMPKPHRIRMTHNLLN
YGLYRKMEIYRPHKANAEEMTKYHSDDYIKFLRSIRPDNMSEYSKQMQRFNVGEDCPV
FDGLFEFCQLSTGGSVASAVKLNKQQTDIAVNWAGGLHHAKKSEASGFCYVNDIVLAI
LELLKYHQRVLYIDIDIHHGDGVEEAFYTTDRVMTVSFHKYGEYFPGTGDLRDIGAGK
GKYYAVNYPLRDGIDDES YEAFKPVMSKVMEMFQPSAVVLQCGSDSLSGDRLGCFNL
TIKGHAKCVEFVKSFNLPLMLLGGGGYTIRNVARCWTYETAVALDTEIPNELPYNDYF
EYFGPDFKLHISPSNMTNQNTNEYLEKIKQRLFENLRMLPHAPGVQMQAIPEDAIPBE
SGDEDED DPKRISICSSDKRIACEEEFSDSEEEGEGGRKNSSNFKKAKRVKTEDEKE
KDPEEKKEVTEBEKTKEEKPEAKGVKEEVKLA (SEQ ID NO:1)

FIGURE 1A

1 atgtctgggg tctctgcccg ctgggtgctgc tgtctccac tcggtcctcc ttagaacaca
 61 gcttgagcgt cctctgcact cggggtagac cagcgggga ggcgagcaag atggcgcaga
 121 cgcagggcac ccggaggaaa gtctgttact actacgacgg gcatgttggg aattactatt
 181 atggacaagg ccacccaatg aagcctcacc gaatccgcat gactcataat ttgctgctca
 241 actatgggtct ctaccgaaaa atggaaatct atcgccctca caaagccaat gctgaggaga
 301 tgaccaagta ccacagcgat gactacatta aattcttgcg ctccatccgt ccagataaca
 361 tgcggagta cagcaagcag atgcagagat tcaacgttgg tgaggactgt ccagtattcg
 421 atggcctgtt tgagttctgt cagtgttcta ctggtggttc tgtggcaagt gctgtgaaac
 481 ttaataagca gcagacggac atcgctgtga attgsgctgg gggcctgcac cztgcaaaga
 541 agtccgaggc atctggcttc tgttacgtca atgatatcgt cttggccatc ctggaactgc
 601 taaagtatca ccagagggtg ctgtacattg acattgatat tcaccatggg gacggcgtgg
 661 aagaggcctt ctacaccacg gaccgggtca tgactgtgtc ctttcataag tatggagagt
 721 acttcccagg aactggggac ctacgggata tcggggctgg caaaggcaag tattatgctc
 781 ttaactaccg gctccgagac gggattgatg acgagtccta tgaggccatt ttcaaagcgg
 841 tcatgtccaa agtaatggag atgttccagc ctagtgcggg ggtcttacag tgtggctcag
 901 actccctatc tggggatcgg ttagggttgc tcaatctaac tatcaaagca caccccaagt
 961 gtgtggaatc tgtcaagagc tttaacctgc ctatgctgat gctgggaggc ggtggttaca
 1021 ccattcgtaa cgttgcccg tcttggaat atgagacagc tgtggccctg gatacggaga
 1081 tccctaataga gcttccatcc aatgactact ttgaatactt tggaccagat ttcaagctcc
 1141 acatcagtc tccaatatg actaaccaga acacgaatga gtacctggag aagatcaaac
 1201 agcgactgtt tgagaacctt agaatgtctc gcacgcacc tggggtccaa atgcaggcga
 1261 ttcttgagga cgccatccct gaggagagtg gcatgagga cgaagacgac cctgacaagc
 1321 gcatctcgat ctgctcctct gacaaacgaa ttgctgtga ggaagagttc tccgattctg
 1381 aagaggaggg agaggggggc cgcaagaact ctccaactt caaaaagcc aagagagtca
 1441 aaacagagga tgaaaaagag aagaccagc aggagagaa agaagtacc gaagaggaga
 1501 aaaccaagga ggaagagcca gaagccaaag ggtcaagga ggaagtcagg ttgacctgaa
 1561 tggacctctc cagctctggc ttctgtctga gtcctcacc tttcttccc c

(SEQ ID NO:2)

FIGURE 1B

MAYSQGGGKKKVCYYYDGDIGNYYYGQCHPMKPHRIRMTNLLL
NYGLYRKMEIYRPHKATAEEMTKYHSDEYIKFLRSIRPDNMSEYSKQMHIFNVGEDCP
AFDGLFEFCQLSTGGSVAGAVKLNRRQQTDMAVNWAGGLRHAKKYEASGFCYVNDIVLA
ILELLKYHQRVLYIDIDIHHGDBGVEEAFYTTDRVMTVSFHKYGEYFPGTGDRLRDIGAG
KGKYYAVNFPMDGIDDESYGQIFKPIISKVMEMYQPSAVVLQCGADSLSGDRLGCFN
LTVKGHAKCVEVVKTENLPLMLGGGGYTIRNVARCWYETAVALDCEIPNELPYNDY
FEYFGPDFKLHISPSNMTNONTPEYMEKIKQRLFENLRMLPHAPGVQMQAIPEDAVHE
DSGDEDEDGDPDKRISIRASDKRIACDEEFSDSEDEGEGRNRNVADHKKGAKKARIEED
KKETEDKKTVDVEEDKSKDNSGEKTDTKGTKSEQLSNP (SEQ ID NO:3)

FIGURE 2A

1 ggaattcgcg gccgcggcgg gcgcggggagg tgcggggcct gctcccgcce gcaccatggc
61 caagaccgtg gcctatttct acgaccccga cgtgggcaac ttccactacg gagctggaca
121 ccctatgaag ccccatcgcc tggcattgac ccatagcctg gtccctgcatt acggtctcta
181 taagaagatg atcgtcttca agccatacca ggcctcccaa catgacatgt gccgcttcca
241 ctccgaggac tacattgact tcctgcagag agtcagcccc accaatatgc aaggcttcac
301 caagagtctt aatgccttca acgtaggcga tgactgcccc gtgttccccg ggctcttga
361 gtctctgctc cgttacacag gcgcattctct scaaggagca acccagctga acaacaagat
421 ctgtgataat gccattazct gggctgggtg tctgcaccat gccaagaagt ttgaggcctc
481 tggcttctgc tatgtcaacg acattgtgat tggcatcctg gagctgctca gtaccacccc
541 tcgggtgctc tacattgaca ttgacatcca ccatggtgac ggggttcaag aagctttcta
601 cctcactgac cgggtcatga cgggtgtcct ccacaaatac ggaaattact tcttcccctg
661 cacaggtagc atgtatgaag tcggggcaga gagtggccgc tactactgtc tgaacgtgcc
721 cctgcgggat ggcattgatg accagagtta caagcacctt tcccagcccg ttatcaacca
781 ggtagtgtag ttctaccaac ccacgtgcat tgtgtccag tgtggagctg actctctggg
841 ctgtgatcga ttgggtgct ttaacctcag catccgaggg catggggaat gcgttgaata
901 tgtcaagagc ttcaatatcc ctctactcgt gctgggtggg ggtgggtata ctgtccgaaa
961 tgttgccccg tgcctggacat atgagacatc gctgctggta gaagaggcca ttagttagga
1021 gcttccctat agtgaatact tcgagtactt tgccccagac ttcacacttc atccagatgt
1081 cagcaccgcg atcgagaatc agaactcacg ccagtatctg gaccagatcc gccagacaat
1141 ctttgaaaac ctgaagatgc tgaaccatgc acctagtgtc cagattcatg acgtgcctgc
1201 agacctcctg acctatgaca ggactgatga ggctgatgca gaggagaggj gtccctgagga
1261 gaactatagc aggccagagg caccaatga gttctatgat ggagaccatg acaatgacaa
1321 ggaaagcgat gtggagattt aagagtggct tgggatgctg tgtoccaaagj zaattctttt
1381 cacctcttgg aagggtctga gggaaaagga gtggctccta gagtccctggg ggtcacccca
1441 ggggtcttct ctgactctgg gaaagagtct ggagaccaca ttgggttctc gaaccatcta
1501 cctgctcttc ctctctctcc caaggactga caatggtacc tattagggat gagatacaga
1561 caaggatagc tatctgggac attattggca gtgggcccctg gaggcagtcc ctagccccc
1621 ttgcccccta tttctccctt gcttccctcg aaccagaga tttttgaggg atgaacgggt
1681 agacaaggac tgagattgcc tctgacttcc tccctcccctg ggtccctgac ttcctccctc
1741 ccttgcttcc agggagatg aagagagaga gatttggag gggctctggc tccctaacac
1801 ctgaatccca gatgatggga agtatgtttt caagtgtggg gaggaatga aaatgttctg
1861 ttctcacttt tggcttcatg tccattttac cactgttttt atccaataaa ctaagtcggt
1921 attttttcta cctttgatgg ttttagcgcc gcgc (SEQ ID NO: 6)

FIGURE 33

MLAMKHQQELLEHQKLERHRQEQUELEKQHREQKLOQLKNKEKG
KESAVASTEVMKMLQEFVLNKKKALAHRLNLNHCISSDPRYWGKTQHSSLDQSSPPQS
GVSTSYNHPVLGMYDAKDDFPLRKTASEPNLKLRSRLKQKVAERRSSPLLRRKDGPPV
TALKKRPLDVTDSACSSAPGSGPSSPNSSGSVSAENGIAPAVPSIPAETSLAHLVA
REGSAAPLPLYTSPSLPNITLGLPATGPSAGTAGQDTERLTLPALQQRLSLFPGTHL
TPYLSSTPLERDGGAAHSPLLQHMVLLLEQPPAQAPLVTGLGALPLHAQSLVGADRVSP
SIHKLRQHRPLGRQTQSAPLPQNAQALQHLVIQQQHQQFLEKHKQQFQQQQQLQMNKIIP
KPSEPARQPESHPEETEEELREHQALLDEPYLDRLPGQKEAHAQAGVQVKQEPIESDE
EEAEPREVEPGQRQPSEQELLFRQQALLLEQQRIHQLRNYQASMEAAGIPVSFGGHR
PLSRAQSSPASATFPVSVQEPPTKPRFTTGLVYDTLMLKHQCTCGSSSSHPEHAGRIO
SIWSRLQETGLRGKCECIRGRKATLEELQTVHSEAHTLLYGTNPLNRQKLDSSKLLGS
LASVFVRLPCGGVGVDSDTIWNEVHSAGAARLAVGCVVELVFKVATGELKNGFAVVRP
PGHHAESTPMGFCYFNSVAVAAKLLQQRLSVSKILIVDWDVHHGNGTQQAFYS DPSV
LYMSLHRYDDGNFFPGSGAPDEVGTGPGUGFNVNMAFTGGLDPPMGDAEYLAAFRTVV
MPIASEFAPDVVLVSSGFDAVEGHPTPLGGYNLSARCFGYLTKQLMGLAGGRIVLAE
GGHDLTAICDASEACVSALLGNELDPLPEKVLQQRPNANAVRSMEKVMETHSKYWRCL
ORTTSTAGRSLIEAQTCENEEAETVTAMASLSVGKPAEKRPDEEPMEEEPPL (see ID No: 7)

FIGURE 4A

09547530 03521504

```

1  ggaggttgtg  gggccgccc  cgcggagcac  cgtccccgc  gccgcccag  cccagcccc
61  agccccgcga  cccgcccgc  cgcggccgc  cgcggccga  acagcctcc  agcctggcc
121  cccggcgcg  ccgtggccg  gtcccggctg  tcgcccgcg  agcccagcc  cgcgcccgc
181  cgggtggcg  cgcaggctga  gggagtgcg  cgcggagcc  cggagcagg  cttagagcc
241  ccgcccgcg  ccgcccgcg  aagcgcagc  ccgcccgcg  gcccgcgcc  catgtccgc
301  cgcggccgc  gcccccgcg  cagcctgcg  gccctggag  ccgcccgcg  tggagccgc
361  cggctccac  ccgcccgcg  cgcggccgc  ggaggcggg  gccagcgct  gccgcccgc
421  gtgggaccc  ccggtccca  gggccgccc  gcccttctg  gaccttcca  cccgcccgc
481  gagcgccct  cgcggccgc  gggggggcg  cgggggtgg  cagcgaggg  agcggccgc
541  tctcccggt  cggggccgc  gcccccgcg  caggttcac  tgcagaagg  agcggagcc
601  tctgttcaa  ttgtgggta  cctggctcat  gagacctgc  cggcgaggc  cggcgctga
661  acgtctgtg  cccagccct  accgtcccg  tacttgtat  tgttggggg  agtttggag
721  tcgttggag  tatcgtttc  gtggaaatt  tgagccatt  cgaatcact  aaaggagtg
781  cacttgcag  caatgagct  ccaaagccat  ccagatggg  ttcttggcc  agaccagca
841  gtggagctg  tgaatcctg  ccgctgaac  cacatgcca  gcacggtgg  tgtggccac
901  gcgttgcct  tgcaagtgg  cccctcggc  gtgcccatt  acctgcgct  ggaccaccg
961  ttctcactg  ctgtggcga  gccggccct  cgggagcag  agctgcagc  ggagctctg
1021  gcgttcaag  agaagcagc  gatccagag  cagatccca  tcgctgagt  ccagaggag
1081  cagagcagc  tctcccgcg  gcacgaggg  cagctccac  agcacatca  gcaataacg
1141  gagatgctg  ccatgaagc  ccagcaggg  ctgctgga  accagcgga  gctggagag
1201  caccgccag  agcaggagc  ggagaagcg  caccgggag  agaagctgc  gcagctcaa
1261  aacaaggag  agggcaaga  gaggcgctg  gccagcacg  aagtgaagt  gaagttaca
1321  gaatttgtc  tcaataaaa  gaagcgctg  gccaccgga  atctgaaca  ctgcatctc
1381  agcagccct  gctactggt  cgggaaaac  cagcacagt  ccttgacca  gagtctcca
1441  cccagagcg  gagtgtcga  ctctataac  caccggctc  tgggaatgt  cgacgcaaa
1501  gatgacttc  ctcttagga  aacagcttc  gaaccgaat  tgaattacg  tgccagcta
1561  aagcagaa  tggccgaa  acgagcagc  cccctgtac  gcaggaaag  cgggcccag
1621  gtactgtct  taaaaaagc  tccgttggg  gtacacagc  ccgctgcag  cagcgccca
1681  ggctccggc  ccagctcac  caacaacag  tccgggagc  tcagcgcg  gaacggtat
1741  agcagcgcg  tcccagcat  cccggcgag  acgagtttg  cgacacagc  tgtggcaga
1801  gaaggctcg  ccgctccac  tcccctctc  acatcgcc  ccttgccaa  catcacgct
1861  ggcttgcct  ccaccggcc  ctctcgggc  acgscggcc  agcaggcac  cgagagact
1921  acccttccc  cctccagca  gagctcttc  ctttccccc  gcaccacct  cactccctc
1981  ctgactcct  cgccttggg  cggggcagc  ggggcaagc  acagccctc  ctgcaagc
2041  atggtcttc  tggagcagc  accggcaca  gcaacctcg  tcacaggcc  gggagcact
2101  cccctccac  cagatcctt  ggttgggca  gaccgggtg  cccctccat  ccacaagct
2161  cggcagcac  gcccaactg  ggggacccg  tcggccccc  tgccccaga  cggccaggc
2221  ctgcagcac  tggcatcca  gcagcagca  cagcagttc  tggagaaac  caagcagag
2281  tccagcagc  agcaactgc  gatgaaca  atcatccca  agccaagca  gccagcccg
2341  cagccggag  gccaccgga  ggagacggg  gaggagctc  gtgagacca  ggctctgct
2401  gacgagccct  acctggacc  gctgcccgg  cagaaggag  cgcacgaca  ggcggcgct
2461  cagggtgag  aggagccat  tgagagcga  gaggaagag  cagagcccc  agcggaggt
2521  gagccgggg  agcgccagc  cagtgcagc  gagctgctc  tcagacaga  agcctctct
2581  ctggagcag  agcggacca  ccagctgag  aactaccag  cgtccatga  gccgcccgc
2641  atccccgtg  ccttcgycg  ccacagcc  ctgtcccgg  cgcagctct  acccgctct
2701  gccaccttc  ccgtgtctg  gcaggagcc  cccaccaag  cgaggttca  gacagccct
2761  gtgtatgac  cgtgtgtgt  gaagcaccg  tgcacctgc  gtagtagca  cagccacct
2821  gagcacgcg  ggaggatca  gagcatctg  tcccgctgc  aggagccgg  cctccgggg
2881  aaatgagag  gcatccgcg  acgcaaggc  accctggag  agctacagc  ggtgactcg
2941  gaagccaca  cctccctga  tggcagca  cccctcaac  ggcagaaac  ggcagtaag
3001  aaactctag  gctcgctgc  ctccgtgtc  ctccggctc  ctgctggtg  tgttgggtg
3061  gacagtaca  ccataagg  cgggtgcac  tcggcgggg  cagcccgct  ggtctgggg
3121  tgcgtggtag  agctgtctt  caaggtggc  acaggggag  tgagaatgg  ccttgcctg
3181  tcccgcccc  ctggacacca  tgggaggag  agcagccca  tgggctttg  ctacttcaa
3241  tccgtggcg  tggcagcca  gcttctgag  cagaggttg  cgtgagcaa  gcttctcat
3301  gtggactgg  agtgcacca  tggaaacgg  acccagcag  ctttctacg  cgaccttag
3361  gtcctgtac  tgtccctca  ccgctacgc  gatgggaac  tcctccagg  cagcggggt
3421  cctgatgag  tgggacagc  gcccggtgt  ggttcaacg  tcaacatgg  tttccagcg
3481  ggcctggac  ccccatggg  agacgtgag  tacttggcg  ccttcagaa  ggttgcctg
3541  ccgatcgca  gcagcttgc  cccggaatg  gtgcgggtg  catcaggct  cgatgctgt

```

FIGURE 4B (SHEET 1 OF 3)

7321 caccgccccac cagcaggcgg ctgtcccgga ggccgtggcc cgtggggact ggccgcccct
7381 cccagcgcgc ccagggctct ggttctggag ggccactttg tcaagggtgt tcagtttttc
7441 tttacttctt ttgaaaatct gtttgcaagg ggaaggacca tttcgtaatg gtctgacaca
7501 aaagcaagtt tgatttttgc agcactagca atggactttg ttgtttttct tttcgatcag
7561 aacatttcctt ctttactggt cacagccacg tgctcatcc a'tcttcctt ttgtagactt
7621 tgggcccacg tgttttatgg gcattgatac atatataaat atatagatat aaatatatat
7681 gaatatattt ttttaagtct cctacacctg gaggttgcat ggactgtacg accggcatga
7741 ctttatattg tatacagatt ctgcacgcca aactcggcag cttggggaa gaagaaaaat
7801 gcctttctgt tccctctca tgacatttgc agatacaaaa gatggaaatt ttctgtaaa
7861 acaaaacctt gaaggagagg agggcgggga agtttgctgc ttattgaact tattcttaag
7921 aaattgtact ttttatgtga agaaaaataa aaaggactac ttaaacattt gtcatattaa
7981 gaaaaaaagt ttatctagca cttgtgacat accaataata gagtttattg tatttatgtg
8041 gaaacagtgt tttagggaat ctactcagaa ttcacagtga actgacctgc tctctcagat
8101 tgatttggag gaattttgtt ttgtttgtt ttgtttgtt ccttttatct ccttcacagg
8161 gccaggcgag cgcgcgcgc cctcactggc cttgtgacgg tttattctga ttgagaactg
8221 ggcggaactc aaagagcccc cttttccgca cagctgtgtt gactttttta ttacttttag
8281 gtgatgtatg gctaagattt cactttaagc agtcgtgaac tgtgcgagca ctgtggttta
8341 caattatact ttgcategaa agsaaaccat ttcttcattg taacgagct gagcgtgttc
8401 ttagctcggc ctactctgt ctctggcatt gattaaaagt ctgctattga aagaaaaag (SEQ ID NO: 8)

FIGURE 4B (SHEET 3 OF 3)

7321 caccgccccac
7381 cccagcgcgc
7441 tttacttctt
7501 aaagcaagtt
7561 aacatttcctt
7621 tgggcccacg
7681 gaatatattt
7741 ctttatattg
7801 gcctttctgt
7861 acaaaacctt
7921 aaattgtact
7981 gaaaaaaagt
8041 gaaacagtgt
8101 tgatttggag
8161 gccaggcgag
8221 ggcggaactc
8281 gtgatgtatg
8341 caattatact
8401 ttagctcggc

LRQGGTLTGKFMSTSSIPGCLLGVALEGDGSPHGASLLQHVL
 LEQARQQSTLIAVPLHGQSPLVTGERVATSMRTVGKLP
 PRHRPLSRTQSSPLFQSPQAL
 QQLVMQQQHQQFLEKQKQQQLQLGKILTKTGELPRQPTTHPEETEEELTEQQEVLLGE
 GALTMPREGSTESESTQEDLEEEDEEEDGEEEDDCIQVKDEEGESGAE
 EGPDLLEPGA
 GYKKLFSDAQPLQPLQVYQAPLSLATVPHQALGRTQSSPAAPGGMKSPPDQPVKHLFT
 TGVVYDTFMLKHQCMCGNTHVHPEHAGRIQSIWSRLQETGLLSKCERIRGRKATLDEI
 QTVHSEYHTLLYGTSP
 LNRQKLD
 SKLLGPISQKMYAVLPCG
 GIGVDSDTVW
 NEMHSS
 SAVRMAVGCLLELAFKVAAGELKNGFAIIRPPGHAEESTAMGFCFFNSVAITAKLLQ
 QKLNVGKVLIVDWDIHHGNGTQQAFYNDPSVLYISLHRYDNGNFFPGSGAPEEVGGGP
 GVGYNVNVAWTGGVDPPIGDVEYLTA
 FRTVVMPIAHEFSPDVVLVSAGF
 DAVEGHLSP
 LGGYSVTARCFGHLTRQLMTLAGGRVVLALEGGHDLTAICDASEACVSALLSVELQPL
 DEAVLQQKPNINAVATLEKVIETQSKHWSCVQKFAAGLGRSLREAQAGETEEAETVSA
 MALLSVGAEQAQAAAAAREHSPRASEPMEQEPAL (SEQ ID. No: 9)

FIGURE 5A

1 cccctgctggc ggggtggcacg ctgaccggca agttcatgag cacatcctct attcctggct
61 gcctgctggg cgtggcactg gagggcgacg ggagccccc cgggcatgcc tccctgctgc
121 agcatgtgct gttgctggag caggcccggc agcagagcac cctcatgct gtgccactcc
181 acggggcagtc cccactagt acgggtgaac gtgtggccac cagcatgctg acggtaggca
241 agctcccgcg gcatcgcccc ctgagccgca ctcatgctcc accgctgccc cagagtcccc
301 agggccctgca gcagctggtc atgcaacaac agcaccagca gtccctggag aagcagaagc
361 agcagcagct acagctgggc aagatcctca ccaagacagg ggagctgccc aggcagccca
421 ccacccaccc tgaggagaca gaggaggagc tgacggagca gcaggaggc ttgctggggg
481 agggagccct gacctgccc cgggagggct ccacagagag tgagagcaca caggaaagac
541 tggaggaggga ggacgaggaa gaggatgggg aggaggaggga gsatgcatc caggtttaag
601 acgaggaggg cgagagtggg gctgaggagg ggcccagact ggaggagcct ggtgctggat
661 acaaaaaact gttctcagat gccagccgc tgacgcttt gcagggtgac caggcgcccc
721 tcagcctggc cactgtgccc caccaggccc tgggcoctac ccagtcctcc cctgtgccc
781 ctgggggcat gaagagcccc ccagaccagc ccgtcaagca cctcttcacc acagggtgtg
841 tctacgacac gttcatgcta aagcaccagt gcctgtgctg gaacacacac gtgcacctg
901 agcatgctgg ccggatccag agcatctggt cccggtgca ggagacagge ctgcttagca
961 agtgcgagcg gatccgagg gatcaggcca cgctagatga gatccagaca gtgcaactct
1021 aataccacac cctgctctat gggaccagtc cctcaaccg gcagaagcta gacagcaaga
1081 agttgctcgg ccccatcagc cagaagatgt atgtgtgct gccctgtggg ggcacgggg
1141 tggacagtga caccgtgtgg aatgagatgc actcctccag tgcgtgctgc atggcagtgg
1201 gctgcctgct ggagctggcc ttcaagggtg ctgcaggaga gctcaagaat ggatttgcca
1261 tcatccggcc cccaggacac cagccgagg aatccacagc catgggattc tgccttctca
1321 actctgtagc catcaccgca aaactcctac agcagaagtt gaacgtgggc aaggctcctca
1381 tcgtggactg ggacattcac catggcaatg gcacccagca ggcgttctat aatgacccct
1441 ctgtgctcta catctctctg catcgctatg acaacgggaa cttctttcca ggccttggg
1501 ctccgtaaga ggttgggtga ggaccaggcg tggggtacaa tgtgaacgtg gcatggacag
1561 gaggtgtgga ccccccatc ggagacgtgg agtaccttac agccttcagg acagtgtgta
1621 tgcccatctg ccacgagttc tcacctgatg tggctcctag ctccgcggg cttgatgctg
1681 ttgaaggaca tctgtctcct ctgggtggct actctgtcac cgccagatgt ttggccact
1741 tgaccaggca gctgatgacc ctggcagggg gccgggtggg gctggccctg gagggaggcc
1801 atgacttgac cgccatctgc gatgcctctg aggcctgtgt cccggctctg ctacgtgtag
1861 agctgcagcc cttggatgag gcagtcctgc agcaaaaagcc caacatcaac gcagtggcca
1921 cgctagagaa agtcatcgag atccagagca aacactggag ctgtgtgca aggttcggcg
1981 ctggtctggg ccggtccctg cgagaggccc aagcaggta gaccgaggag gccgagactg
2041 tgagcgccat ggccctgtctg tgggtgggg ccgagcaggc ccaggctgct gcagccggg
2101 aacacagccc caggccggca gaggagccca tggagcagg gctgtgctg tgacgccccg
2161 gccccatcc ctctgggctt caccattgtg atttctgtta tttttctat taaaaacaaa
2221 aagtcacaca ttc

(SEQ ID NO:10)

FIGURE 5B

1 mtstgqdstt trqrrsrqnp qspqqdssvt skrnikkav prsipnlaev kkkgkmkklg
61 qameedlivg lqgmdlnlea ealagtglvl deqlnefhcl wddsfpegpe rlhaiekeqli
121 qeglldrcvs fgarfaekee lmlvhsleyi dlmettqymn egelrvladt ydsvyhpn
181 yscacclasg vlrlvdavlg aeirngmai rppghhaqhs lmdgycmfnh vavaaryaqq
241 khrrrvliv dwdvhhgqgt qftfdqpsv lyfsihryeq grfwphlkas nwsttgfgqg
301 qgytinvpwn qvgmrdadyi aafhlvllpv alefqpqlvl vaagfdalqg dpkgemaatp
361 agfaqlthll mglaggklil sleggylnra laegvsaslh tllgdpcpml espgapcrsa
421 qasvscalea lepfwevlvr stetverdnm eednveesee egpweppvlp iltwvplqsr
481 tglvydqnmn nhcnlwdshh pevprilri mcrleelgla grcltltrp ateaelltch
541 saeyvghlra tekmtrelh ressnfdisy icpstfacaq latgaacriv eavlsgevl
601 gaavvrppgh haeqdaacgf cffnsavava rhaqtisgha lrilivdwdv hhngtqhmf
661 eddpvlyvs lhrydhtff pmgdegassq igraagtgt vnvawngprm gdadylaawh
721 rlvpiayef npelvlvsag fdaargdplg gcqvspegia hlthlmgl sgrilileg
781 gynltsises maactrlg dppplltpr pplsgalasi tetiqvhrry wrslrmkve
841 dregpsskl vtkkapqak prlaermtr ekkvleagmg kvtsasfgee stpgtnset
901 avvaltqdpq seaatggatl aqtiseaaig gamlgqttse eavggatpdq ttsetvgga
961 ildqtseda vggatlgqtt seeavggatl aqtiseaame gatldqttse eapggatliq
1021 tplsstdhq tpptspvqgt tpqispstli gslrtlelgs esqgasesqa pgeenllgea
1081 aggdmdasm lmqgsrgltd qaifyavtvl pwcphlvavc pipaagldvt qpcgdcgtiq
1141 enwvclscyq vycgryingh mlqhhgnsgh plvlsyids awcyycqayv hhqalldvkn
1201 iahqnkfged mphph (SEQ ID NO:11)

FIGURE 6A

1 gggcagtcctc ctgaggagcg gggctggtg aaacgctagg ggcgggatct ggcggagtgg
 61 aagaaccgcg gcagggggcca agcctctca actatgacct caaccggcca ggattccacc
 121 acaaccaggc agcgaagaag taggcagaac cccagtcgc cccctcagga ctccagtgtc
 181 acttcaagc gaaatattaa aaagggagcc gtccccgct ctatcccaa tctagcggag
 241 gtaaagaaga aaggcaaat gaagaagctc ggccaagcaa tggaagaaga cctaactgtg
 301 ggactgcaag ggatggatct gaacctgag gctgaagcac tggctggcac tggcttggtg
 361 ttggatgagc agttaaatga attccattgc ctctgggatg acagcttccc ggaaggccct
 421 gagcggctcc atgccatcaa ggagcaactg atccaggagg gcctcctaga tcgctgcgtg
 481 tcttttcagg cccggtttgc tgaagaggaa gagctgatgt tggttcacag cctagaatat
 541 attgatctga tggaaacaac ccagtacatg aatgaggagg aactccgtgt cctagcagac
 601 acctacgact cagtttatct gcattccgaac tcatactcct gtgcctgcct ggcttcaggc
 661 tctgtctca ggtctggtgga tgcggctctg ggggctgaga tccggaatgg catggccatc
 721 attagccctc ctggacatca cggccagcac agtcttatgg atggctattg catgttcaac
 781 cactggctg tggcagcccg ctatgtcaa cagaacacc gcattccggag ggtccttacc
 841 gtagattggg atgtgcacca cggtaagga acacagtcca ctttcgacca ggaccccgat
 901 gtctctatt tctccatcca ccgtacgag cagggtagggt tctggcccca cctgaaggcc
 961 tctaactggg ccaccacagg ttccggcca ggccaaggat ataccatcaa tgtgccttgg
 1021 aaccagggtg ggatgcggga tgcgtactac attgctgctt tctgcacgt cctgctgcca
 1081 gtgcctctc agttccagcc tcagctgggc ctggtggctg ctggattga tgcctgcaa
 1141 ggggacccca aggggtgagt ggcggccact ccggcagggt tcgcccagct aacccacctg
 1201 ctcatgggtc tggcaggagg caagctgac ctgtctctgg aggggtggta caacctccgc
 1261 gccctggctg anggcgctag tcttcgctc cacaccttc tgggagacc ttgcccatg
 1321 ctggagtcac ctgggtgccc ctgccggagt gccaggctt cagtctctg tctctggaa
 1381 gcccttgagc cttctggga gggtctgtg agatcaactg agaccgtgga gagggacaac
 1441 atggaggagg acaatgtaga ggagagcgag gaggaaggac cctgggagcc cctgtgctc
 1501 ccaatcctga catggccagt gctacagtct cgcacagggc tggctatga ccaaatatg
 1561 atgaatcact gcaacttgt ggacagccac caccctgagg taccacagcg catcttgccg
 1621 atcatgtgcc gtctggagga gctgggcctt gccgggcgct gcctcacct gacaccgcg
 1681 cctgccacag aggtgagct gctcacctgt cacagtgtg agtacgtggg tcatctccg
 1741 gccacagaga aatgaaaac ccgggagctg caccgtgaga gtccaact tgaactcacc
 1801 tatatctgcc ccagtacct cgcctgtgca cagcttgcca ctggcgctgc ctgccgctg
 1861 gtggaggctg tctctcagg agaggctct aatggtgctg ctgtggtgcg tccccagga
 1921 caccacgac agcaggatgc agctgcggg tttgtctt tcaactctg ggctgtggct
 1981 gctgccatg ccagactat cagtgggcat gccctacgga tctgattgt ggattgggat
 2041 gtccaccacg gtaatggaac tcagcacatg ttgaggatg acccagtggt gctatatgt
 2101 tccctgcacc gctatgatca tggcaccttc tccccatgg gggatgaggg tgccagcagc
 2161 cagatcgcc gccgctgcgg cacaggcttc accgtcaac tggcatgga cgggccccgc
 2221 atgggtgatg ctgactacct agctgcctgg catgcctgg tcttccat tgcctacgag
 2281 ttaaccag aactgtgct ggctcagct ggctttgatg ctgcacgggg ggatccgctg
 2341 gggggctgcc aggtgtcacc tgagggttat gccacctca cccactgct gatgggcctt
 2401 gccagtggc gcaatctct tctctagag ggtggctata acctgacac catctcagag
 2461 tccatggctg cctgcacg ctccctcct ggagaccac caccctgct gacctgcca
 2521 cggccccac taccaggggc cctggcctca atactgaga ccatccaagt ccatgcaga
 2581 tactggcgca gcttacgggt catgaaggta gaagacagag aaggacctc cagttctaag

Figure 6B (sheet 1 of 2)

2641 ttggtcacca agaaggcacc ccaaccagcc aaacctaggt tagctgagcg gatgaccaca
 2701 cgagaaaaga aggttcttga agcaggcatg gggaaagica cctcggcatc atttggggaa
 2761 gagtccactc caggccagac taactcagag acagctgtgg tggccctcac tcaggaccag
 2821 ccctcagagg cagccacagg gggagccact ctggcccaga ccatttctga ggcagccatt
 2881 gggggagcca tgctgggcca gaccacctca gaggaggctg tcgggggagc cactccggac
 2941 cagaccacct cagaggagac tgtgggagga gccattctgg accagaccac ctgagaggat
 3001 gctgttgggg gagccacgct gggccagact acctcagagg aggctgtagg aggagctaca
 3061 ctggcccaga ccattctgga ggcagccatg gagggagcca cactggacca gactacgtca
 3121 gaggaggctc cagggggcac cgagctgac caaactctc tagcctcgag cacagaccac
 3181 cagaccccc caacctcacc tgtgcaggga actacacccc agatattctc cagtacactg
 3241 attgggagtc tcaggacctt ggagctaggc agcgaatctc agggggcctc agaattctag
 3301 gcccaggag aggagaacct actaggagag gcagctggag gtcaggacat ggctgattcg
 3361 atgctgatgc agggatctag gggcctcact gatcaggcca tattttatgc tgtgacacca
 3421 ctgccctggt gtccccattt ggtggcagta tgcccatac ctgcagcagg cctagacgtg
 3481 acccaacctt gtggggactg tggaacaatc caagagaatt ggggtgtgtct ctcttgctat
 3541 caggtctact gtggctgta catcaatggc cacatgctcc aacacatgg aaattctgga
 3601 caccgctgg tctcageta catgacctg tcagcctggt gttactactg tcaggcctat
 3661 gtccaccacc aggtctctct agatgtgaag aacatcgccc accagaacaa gtttggggag
 3721 gatatgcccc acccacacta agccccagaa tacggtcctt ctccaccttc tgaggccac
 3781 gatagaccag ctgtagctca ttccagctg taccttggat gaggggtagc ctccactgc
 3841 atcccatct gaatatctt tgcaactccc caagagtgt tatttaagt ttaatactt
 3901 taagagaact gcgacgatta attgtggatc tccccctgcc cattgcctgc ttgaggggca
 3961 ccactactcc agcccagaag gaaagggggg cagctcagt gcccgaagag ggagctgata
 4021 tcatgaggat aacattggcg ggaggggagt taactggcag gcatggcaag gttgcatatg
 4081 taataaagta caagctgtt (SEQ ID NO. 12)

FIGURE 6B
 (Sheet 2 of 2)

1 mdlrvqrrpp vepppeptll alqrpqrlhh hlflaglqqq rsvepmrlsm dtpmpelqvg
 61 ppeqelrqll hkdkskrsav assvvkqkla evilkkqaa lertvhpnsip gipyrtlepl
 121 etegatrsml ssflppvpsl psdppehfp l rktvsepnk lrykpkksle rrknpllrke
 181 sappslrrrp aetlgdssps ssstpasgcs spndsehgn pilgdsdrrt hptlgprgpi
 241 lgsphtplfl phglepeagg tpsrlqpil lldpsgshap lltvpglgpl pfhfaqlmt
 301 terlsqglh wplsrtsep lppsatappp pgpmqprleq lkthvqvkr sakpsekprl
 361 rqipssadle tdgggpgqv ddglehrelg hgqpeargpa plqqhpqvll weqqrlagrl
 421 prgstgdtvl lplaggghrp lsraqsspaa paslsapepa sqarvlsse tpartlpft
 481 gliydsvmk hqcscgdnr hpehagriqs iwsrlqergl rsqceclgr kasleelqsv
 541 hserhvllyg tnplsrlkld ngklagllaq rmfemlpcgg vgvtdtiwn elhssnaarw
 601 aagsvtdlaf kvasrelkng favvrppghh adhstamgfc ffnsvaiacr qlqqqskask
 661 askilivdwd vhhngtqqt fyqdpvlyi slhrddgnf fpgsgavdev gagsgegfnv
 721 nvawagglp pmgdpeylaa frivvmpiar efspdlvls agfdaaeghp aplggyhvsa
 781 kcfgymtqql mnlaggavvl alegghdta icdaseacva allgnrvdpl seegwkqkpq
 841 pqchplsgr dpgaq (SEQ ID NO: 13)

FIGURE 7A

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1 ataataccta ccttgacga ccacgacagg attaatgag gaaaaacccc catgagagt
 61 ttttgcatt gtcaagtga cctgagggag gctgaggggg gatcaggctg tatcatgcc
 121 ccgaggacaa actttccagt ttacctgct cctctctct gtccctaggc tgccccaggc
 181 cctgtgcaga cacaccaggc cctcagccgc agcccatgga cctgcgggtg ggccagcggc
 241 cccagtggg gccccacca gagcccatat tcttgccct gcagcgtccc cagcgctgc
 301 accaccacct cttctagca ggcctgcagc agcagcgctc ggtggagccc atgaggtct
 361 ccatggacac gccgatgcc gagtgcagg tgggaccca ggaacaagag ctgcggcagc
 421 ttctccaaa ggacaagagc aagcgaagt ctgtagccag cagcgtggc aagcagaagc
 481 tagcggaggt gattctgaaa aaacagcagg cgccctaga aagaacagtc catcccaaca
 541 gccccggcat tcctacaga accctggagc ccctggagac ggaaggagcc acccgctcca
 601 tctcagcag cttttgct cctgttcca gctgcccag tgaccccca gacacttc
 661 ctctgcgcaa gacagtctt gagcccaacc tgaagtgcg ctataagccc aagaagtccc
 721 tggagcggag gaagaatcca ctgctccga aggagagtgc gccccccagc ctccggcggc
 781 ggcccgaga gacctcgga gactctccc caagtagtag cagcacgcc gcatcagggt
 841 gcagctccc caatgacagc gacacggcc ccaatccat cctgggcgac agtgaccga
 901 ggacccatc gactctggc cctcgggggc caatcctggg gagcccccac actccctct
 961 tctgcccga tggcttgag cccgaggtg ggggcacctt gcctctcgc ctgcagcca
 1021 ttctctct ggaccccca ggtctcatg ccccgctgt gactgtgcc gggcttggc
 1081 cttgcccct cactttgcc cagctctaa tgaccacca gcggctctt gggcagggc
 1141 tccatggcc actgagccg actcgtcag agccctgcc cccagtgc accgtcccc
 1201 caccgccgg cccatgcag ccccgctgg agcagctca aactcacgc caggtgatc
 1261 agaggtcagc caagccagt gagaagcccc ggctgcggc gataccctc gctgaagac
 1321 tggagacaga tggcggggga ccgggccagg tggtagcga tggcctggg cacagggagc
 1381 tgggcatgg gcagcctgag gccagaggcc ccgtctctt ccagcagc cctcaggtg
 1441 tctctggga acagcagcga ctggctggg ggcctcccc gggcagcacc ggggacactg
 1501 tctgtcttc tctggcccag ggtgggcacc ggcctctgt ccgggctcag tcttcccag
 1561 ccgacctgc ctcactgtc gcccagagc ctgccagca gggcgagtc ctctcagct
 1621 cagagacccc tggcaggacc ctgccccta ccacagggt gatctatgac tgggtcatg
 1681 tgaagacca gtgtctctg ggtgacaaca gcaggcacc ggagcacgc gcccgcatc
 1741 agagcatctg gtcccggctg caggagcggg ggtccggag ccagtgtgag tcttccgag
 1801 gccggaaggc ctcctggaa gagctgcagt cgtccactc tgagcggcag gtgtctctt
 1861 acggcaccaa ccgctcagc cgcctcaaac tggacaacgg gaagctggc gggctctgg
 1921 cacagcggat gtttgagat ctgcccgtg gtgggggtgg ggtggacact gacaccatc
 1981 ggaatgagct tcattctcc aatgcagccc gctgggccc tggcagtgt actgacctg
 2041 cttcaaatg ggttctctg gagctaaaga atggttctc tgtgtgagg cccccaggc
 2101 accatgcaga tcattcaaca gccatgggt tctgtctt caactcagt gccatgcct
 2161 gccggcagct gcaacagcag agcaaggcca gcaaggccag caagatctc attgtagat
 2221 gggacgtgca ccatggcaac ggcaccagc aaaccttcta ccaagacccc agtgtgtct
 2281 acatctccct gcacgccat gacgacggc acttctccc ggggagtggt gctgtggatg
 2341 aggtaggggc tggcagcgt gagggcttca atgtcaatgt ggcctgggt ggaggtctg
 2401 acccccccac gggggtact gagtacctg ctgcttcag gatagctgt atgcccacg
 2461 cccgagagtt ctctccagc ctgctctgg tctgtctgg attgatgct gctgagggtc
 2521 accggcccc actgggtggc taccatgtt ctgccaatg ttttgatac atgacgcagc
 2581 aactgatgaa cctggcagga ggcgagtggt tctggcctt ggagggtggc catgacctc

Figure 7A (sheet 1/2)

2641 cagccatctg tgacgcctct gaggcctgtg tggctgctct tctgggtaac aggggtggatc
2701 ccctttcaga agaaggctgg aaacagaaac cccaacctca atgccatccg ctctctggag
2761 gccgtgatcc ggggtgcacag taaatactgg ggctgcatgc agcgcctggc ctctgtcca
2821 gactcctggg tgcctagagt gccaggggct gacaaagaag aagtggaggc agtgaccgca
2881 ctggcgctcc tctctgtggg catcctggct gaagataggc cctcggagca gctggtggag
2941 gaggaagaac ctatgaatct ctaaggctct ggaacctatc gcccgccac catgcccttg
3001 ggacctggtt ctcttctaac cctgggcaat agccccatt cctgggtctt tagagatcct
3061 gtgggcaagt agttggaacc agagaacagc ctgcctgctt tgacagttat ccaggggagc
3121 gtgagaaaat c (SEQID NO:14)

FIGURE 7B
(sheet 2/2)

1 meepeepads gqslvpvyiy speyvsmcds lakipkrasm vhsleayal hkqmrivkpk
61 vasmeematf htdaylqhlq kvsqegdddh pdsieyglgy dcpategifd yaaaiggati
121 taaqclidgm ckvainwsgg whhakkdeas gfcylndavl gilrlrkfe rilyvdldlh
181 hgdgvedafs ftskvmtvsl hkfspgffpg tgdvsdvlg kgryysvnp iqdgideky
241 yqicesvlke vyqafnpkav vlqlgadtia gdpmsfnmt pvgigkclky ilqwqlatli
301 lggggynlan tarcwtyltg vilgktilsse ipdhefftay gpdyvleip scrpdneph
361 riqqilnyik gnlkhvv (SEQ ID No:15)

FIGURE 8A

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1 gaaattcggc acgagctcgt gccgaattcg gcacgagaac ggttttaagc ggaagatgga
61 ggagccggag gaaccggcgg acagtgggca gtcgctggtc ccggtttata tctatagtc
121 cgagtatgtc agtatgtgtg actccctggc caagatcccc aaacgggcca gtatggtgca
181 ttctttgatt gaagcatatg cactgcataa gcaaatgagg atagttaagc cttaaagtggc
241 ctccatggag gagatggcca cctccacac tgatgcttat ctgcagcatc tccagaaggt
301 cagccaagag ggcgatgatg atcatccgga ctccatagaa tatgggctag gttatgactg
361 cccagccact gaagggatat ttgactatgc agcagctata ggaggggcta cgatcacagc
421 tgcccaatgc ctgattgacg gaatgtgcaa agtagcaatt aactggtctg gaggggtggca
481 tcatgcaaag aaagatgaag catctgggtt ttgttatctc aatgatgctg tcctgggaat
541 attacgattg cgacggaaat ttgagcgtat tctctacgtg gatttggatc tgcaccatgg
601 agatggtgta gaagacgcac tcagtttcac ctccaaagtc atgaccgtgt ccctgcacaa
661 atttcccca ggattttcc caggaacagg tgacgtgtct gatgttggcc tagggaaggg
721 acgttactac agtgtaaatg tgcccatcca ggaatggcata caagatgaaa aatattacca
781 gatctgtgaa agtgtactaa aggaagtata ccaagccttt aatcccaaag cagtgtctt
841 acagctggga gctgacacaa tagctgggga tccatgtgc tcctttaaca tgactccagt
901 gggaattggc aagtgtctta agtacatcct tcaatggcag ttggcaacac tcattttggg
961 aggaggaggc tataaccttg ccaacacggc tcgatgctgg acatacttga ccgggggtcat
1021 cctagggaaa acactatcct ctgagatccc agatcatgag ttttcacag catatggtcc
1081 tgattatgtg ctggaaatca cgccaagctg ccggccagac cgcaatgagc cccaccgaat
1141 ccaacaaatc ctcaactaca tcaaaggga tctgaagcat gtggtctagt tgacagaaag
1201 agatcaggtt tccagagctg aggagtggg cctataatga agacagcgtg tttatgcaag
1261 cagtttgtgg aatttgtgac tgcagggaaa atttgaaaga aattacttcc tgaattttc
1321 caagggggcat caagtggcag ctggcttcct ggggtgaaga ggcaggcacc ccagagtcct
1381 caactggacc taggggaaga aggagatata ccacatttaa agttcttatt taaaaaaca
1441 cacacacaca aatgaaattt ttaattcttg aaaattattt ttaagcgaat tggggagggg
1501 agtattttaa tcatcttaa tgaacagat cagaagctgg atgagagcag tcaccagttt
1561 gtagggcagg aggcagctga caggcagggn tngggcctcn ggaccancca ngtggagccc
1621 tgggagagan ggtactgac ngcagactgg gagg (SEQ ID NO:16)

FIGURE 8B

Figure 9A

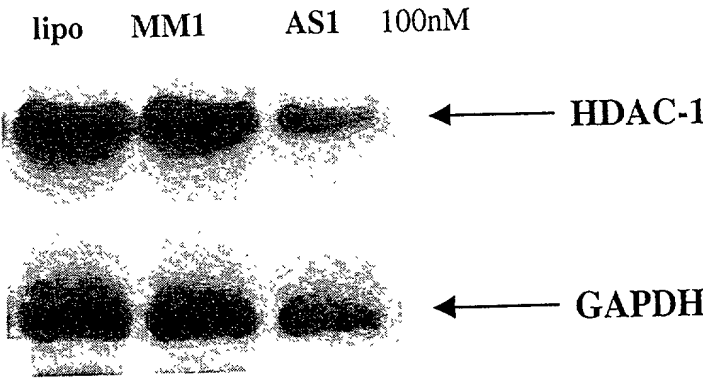


Figure 9B

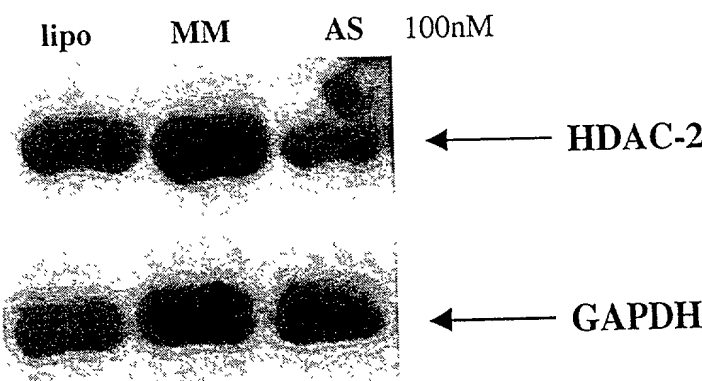


Figure 9C

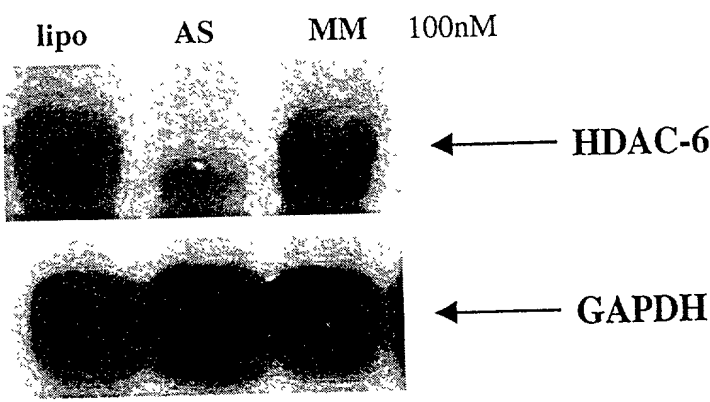


Figure 9 D

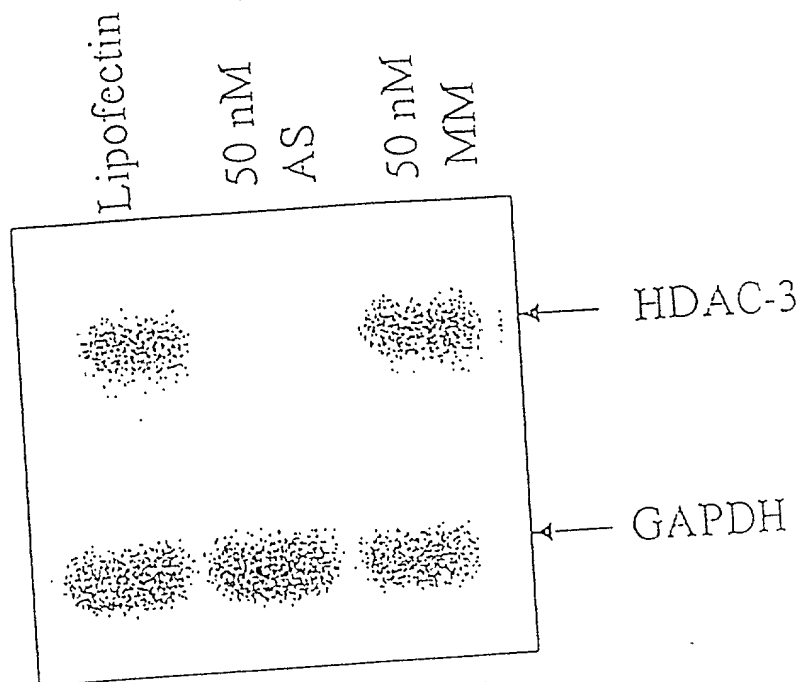


Figure 9 E

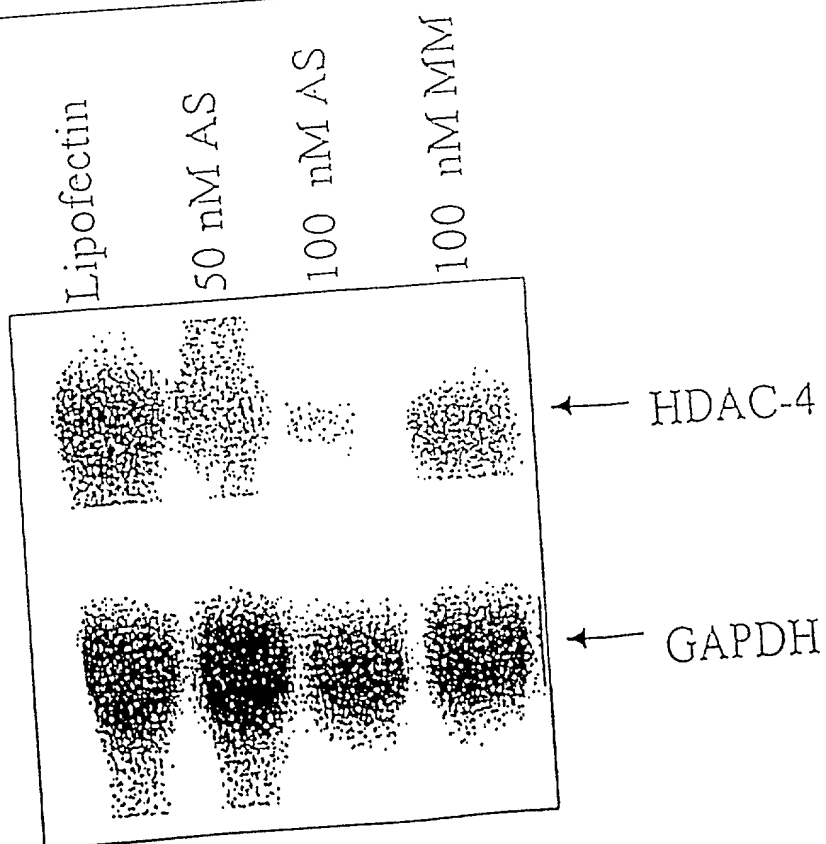


FIGURE 9 F

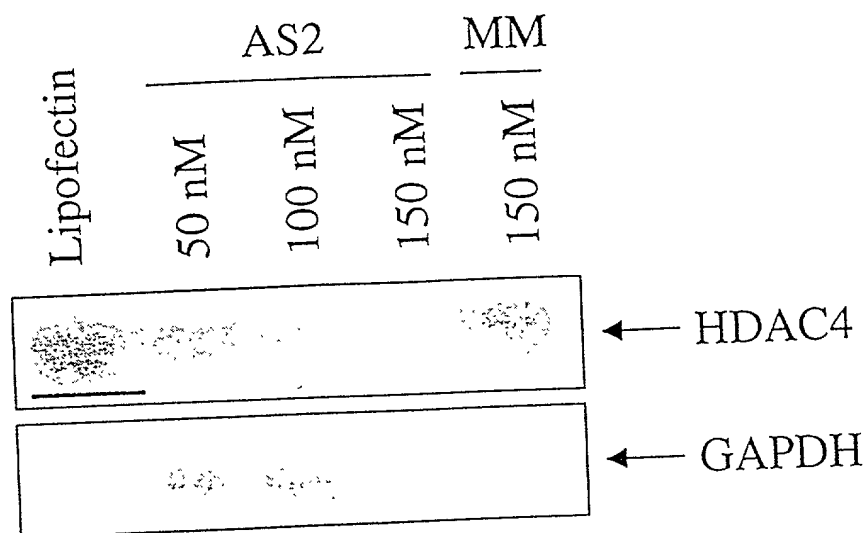


FIGURE 9 G

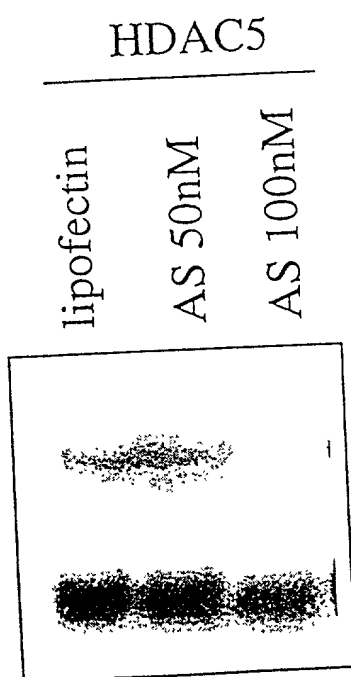


FIGURE 9 H

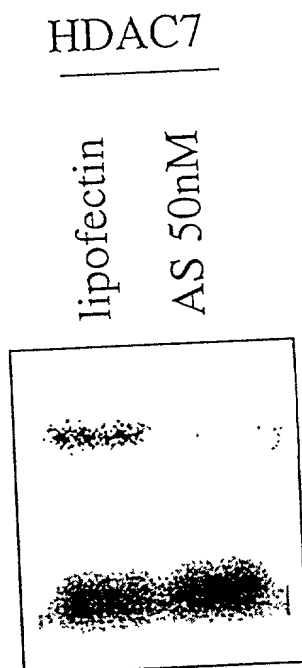


Figure 9I

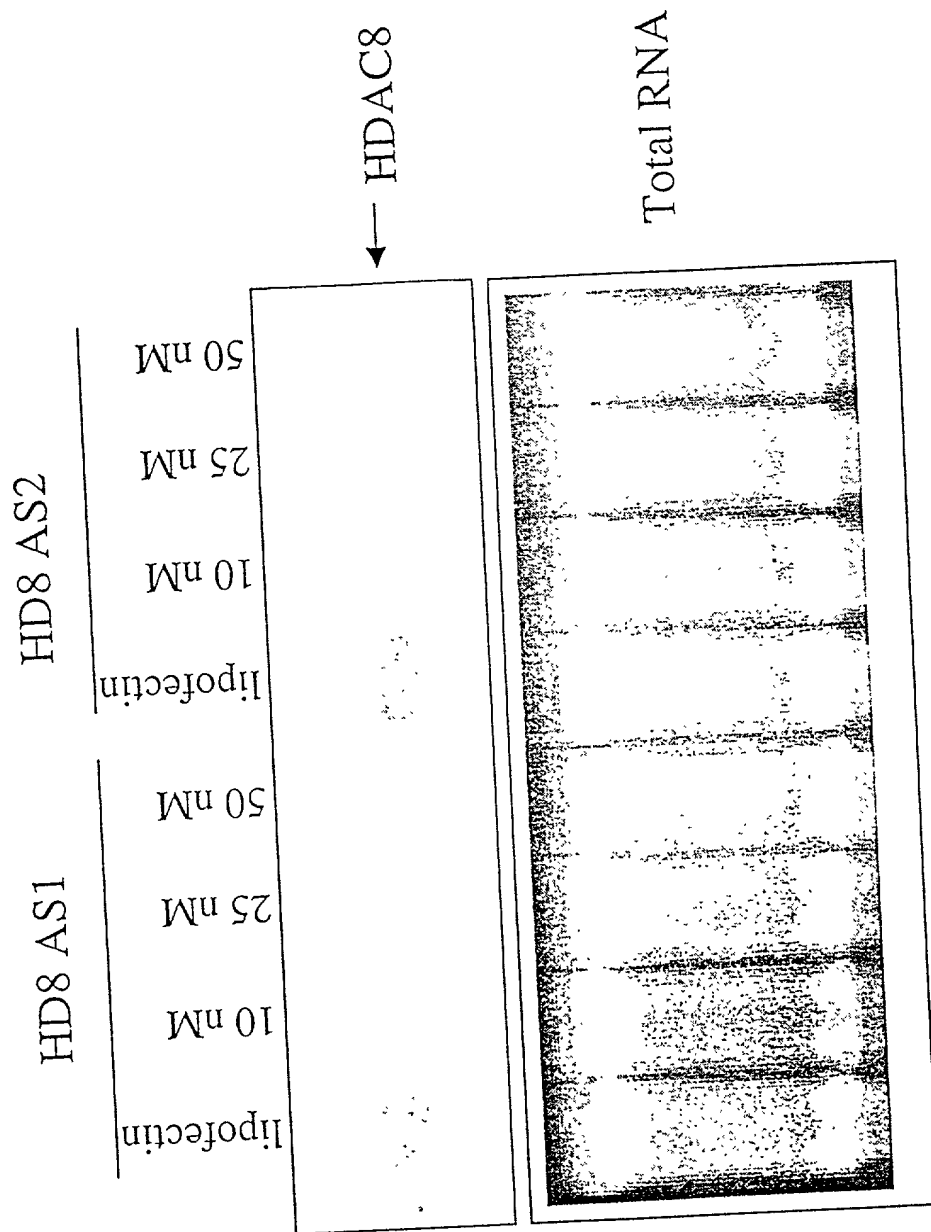
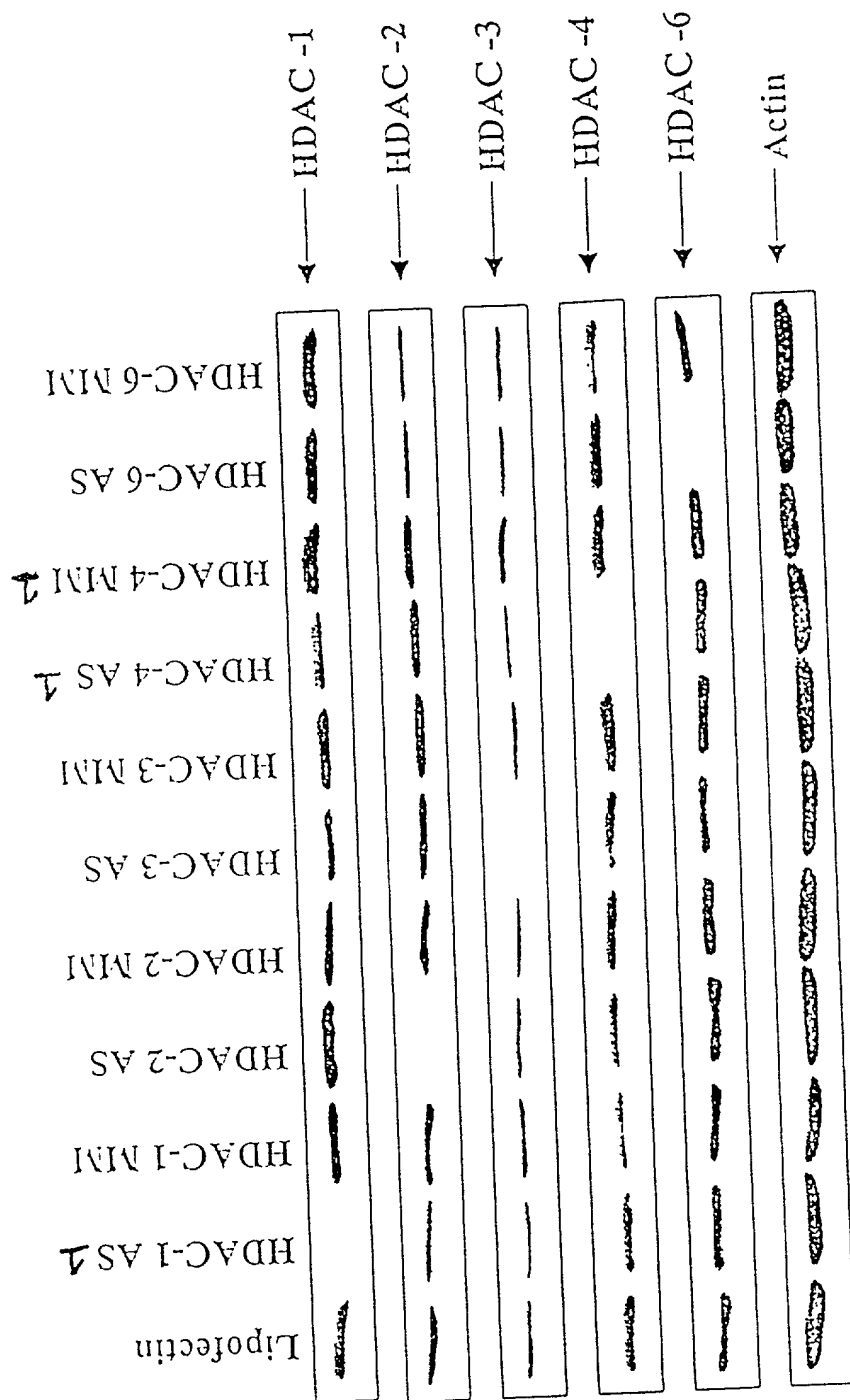


Figure 10 A



AS = Antisense
MM = Mismatch
NS = Non-specific control
3 day treatment
Oligonucleotide conc. = 50nM

FIGURE 10 B

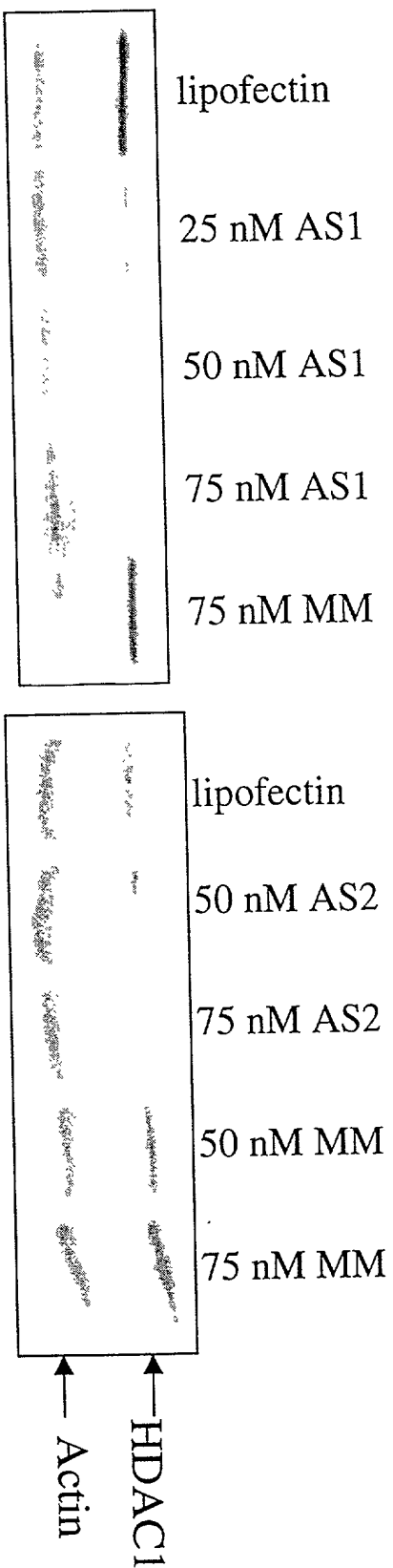


FIGURE 11

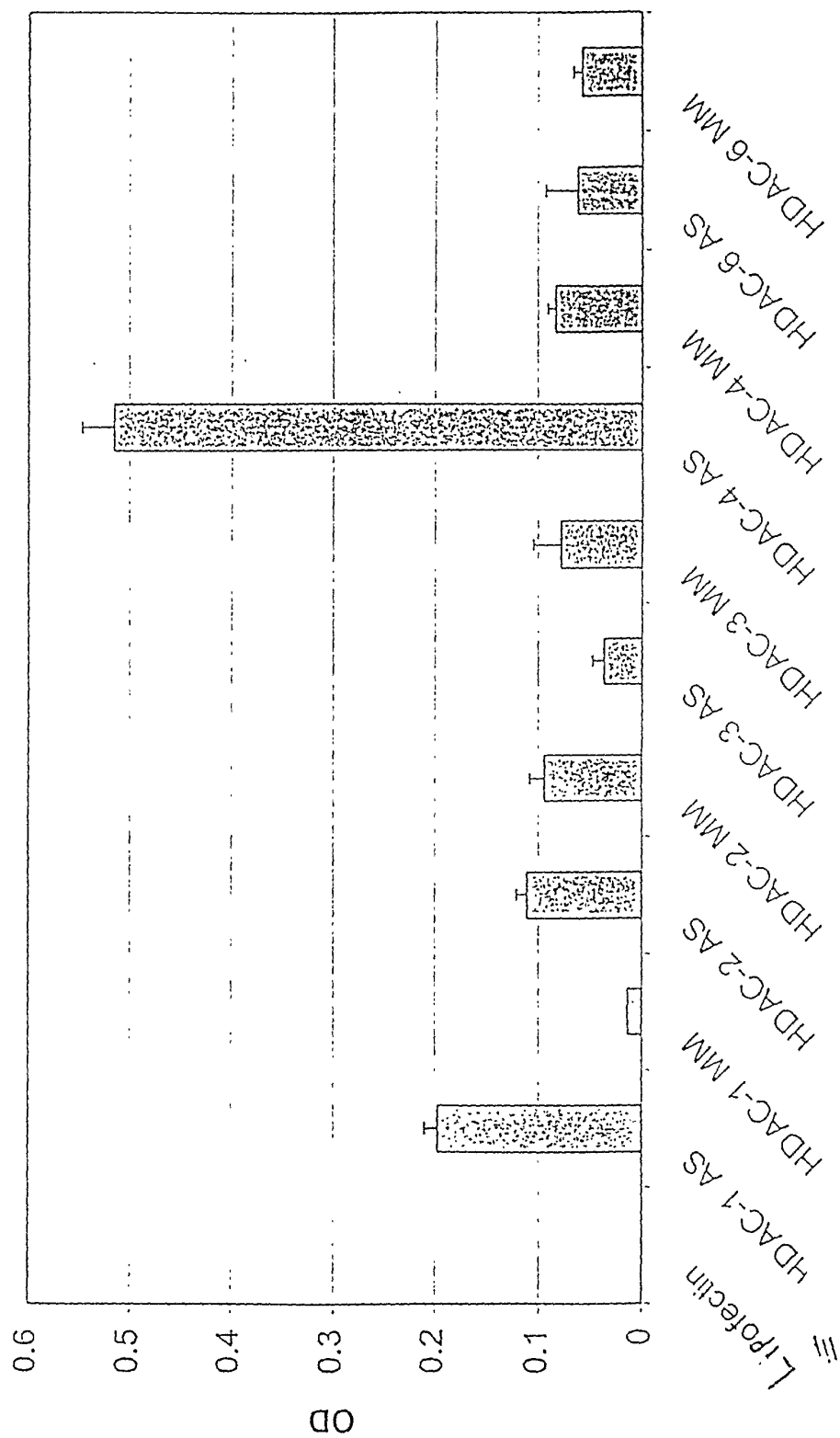


FIGURE 12A

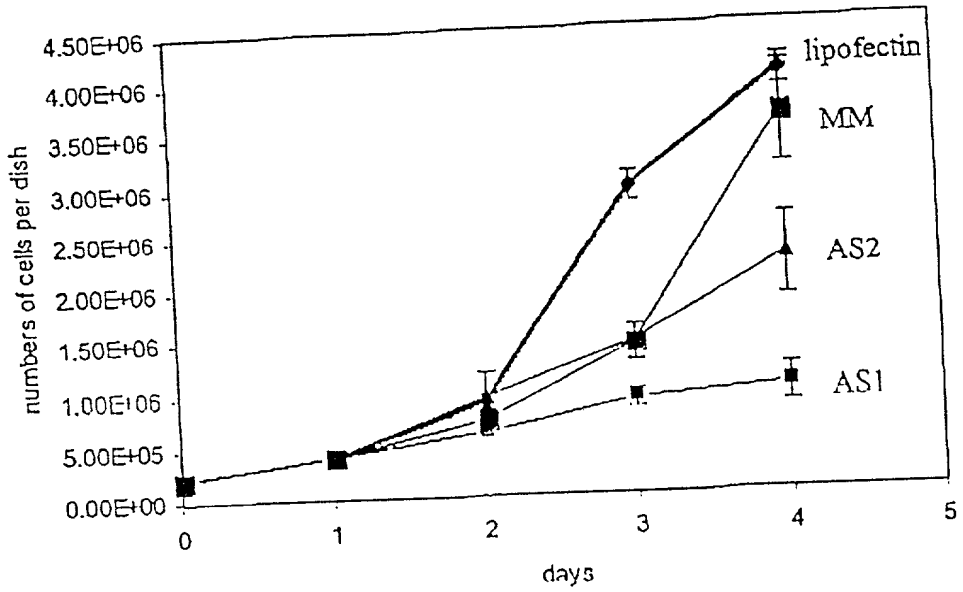


FIGURE 12B

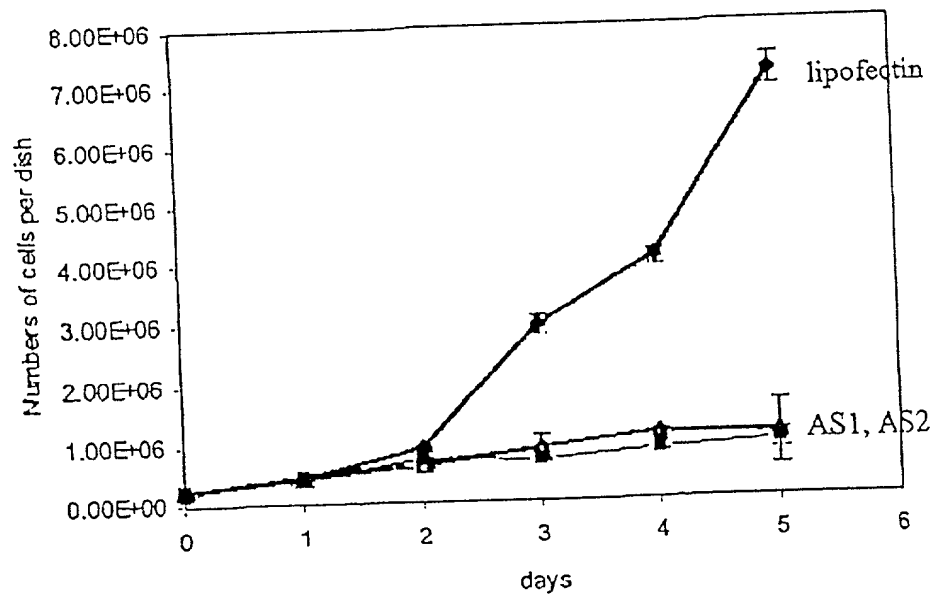
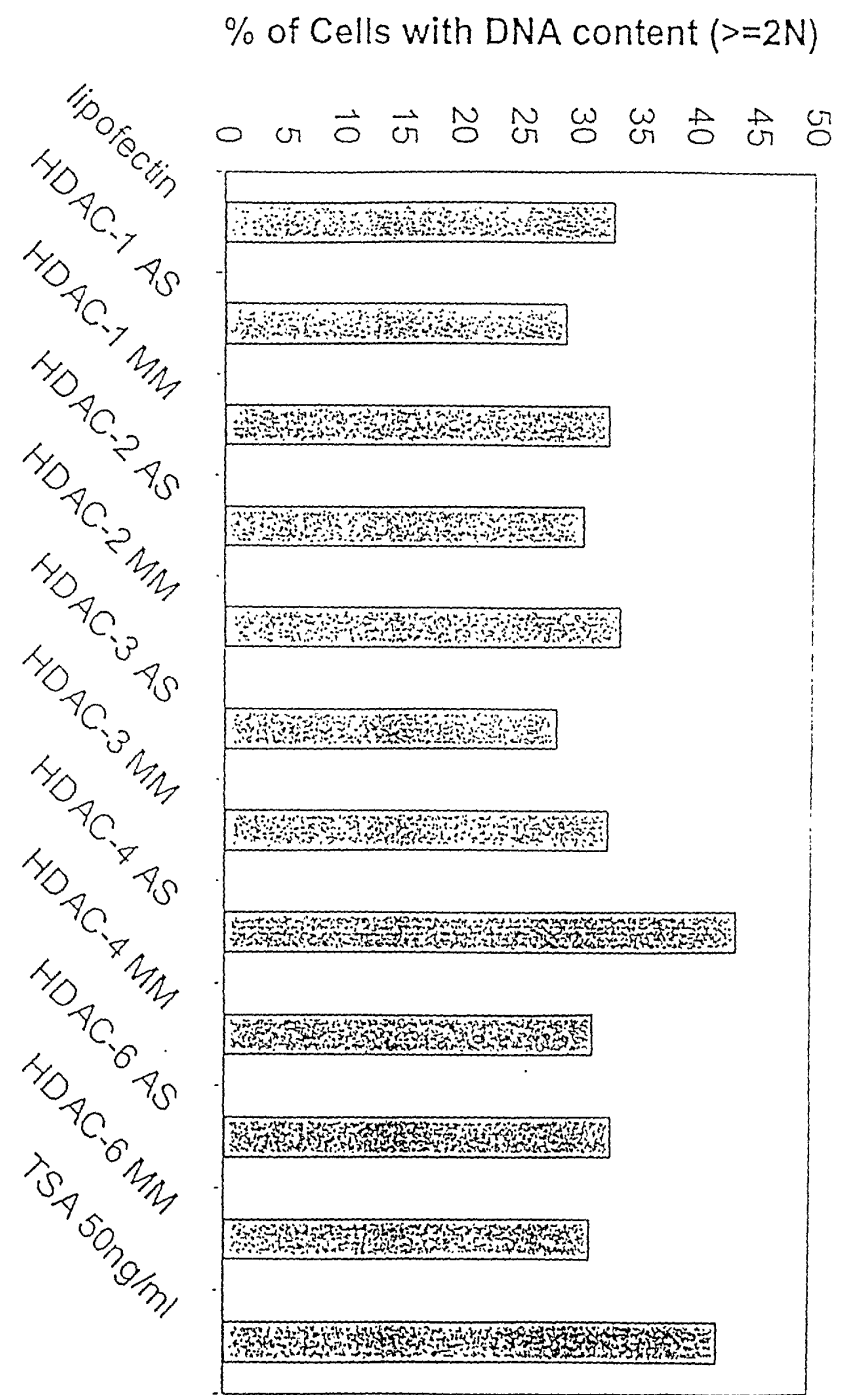


FIGURE 13



09517538.032604

FIGURE 14

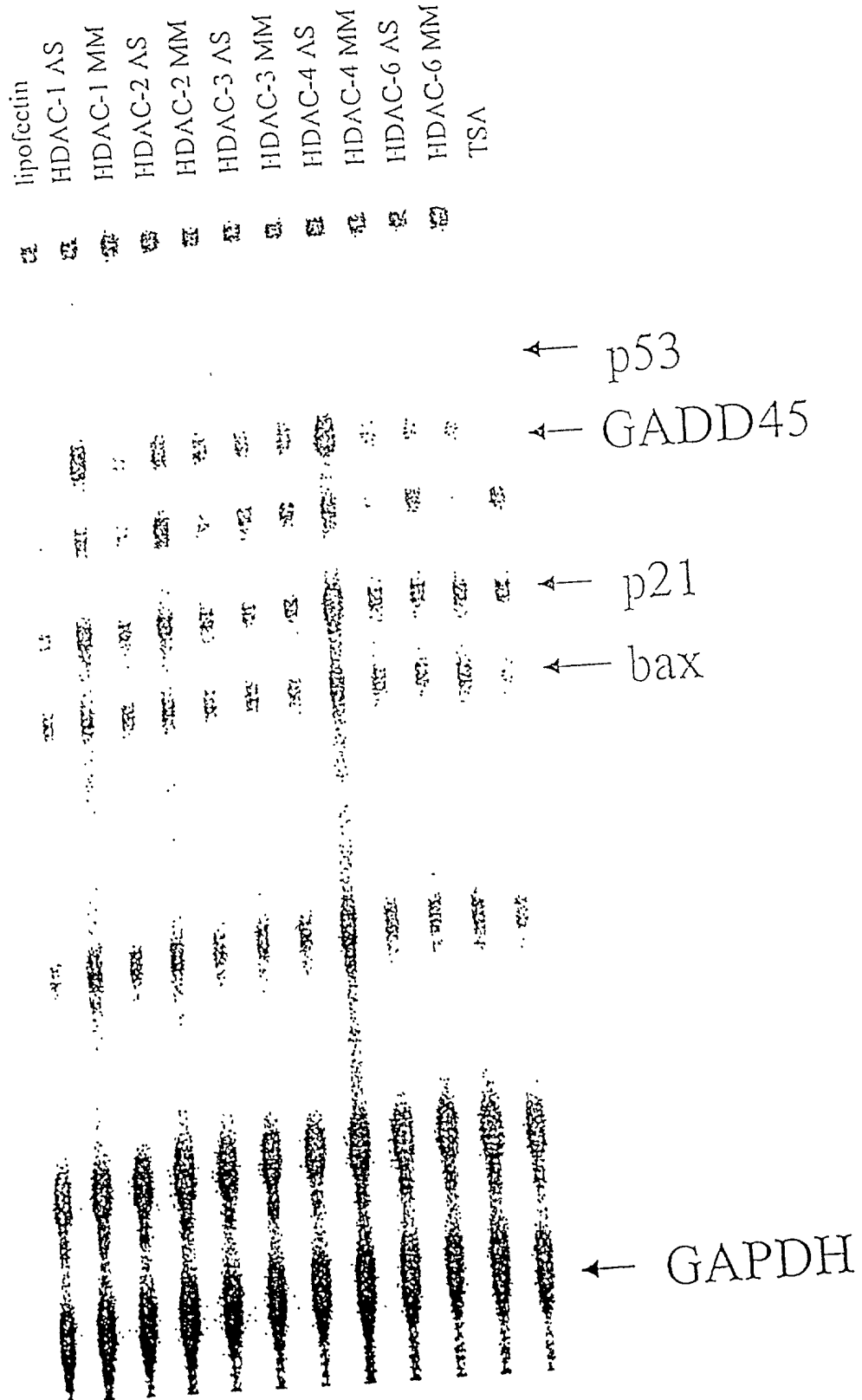


FIGURE 15

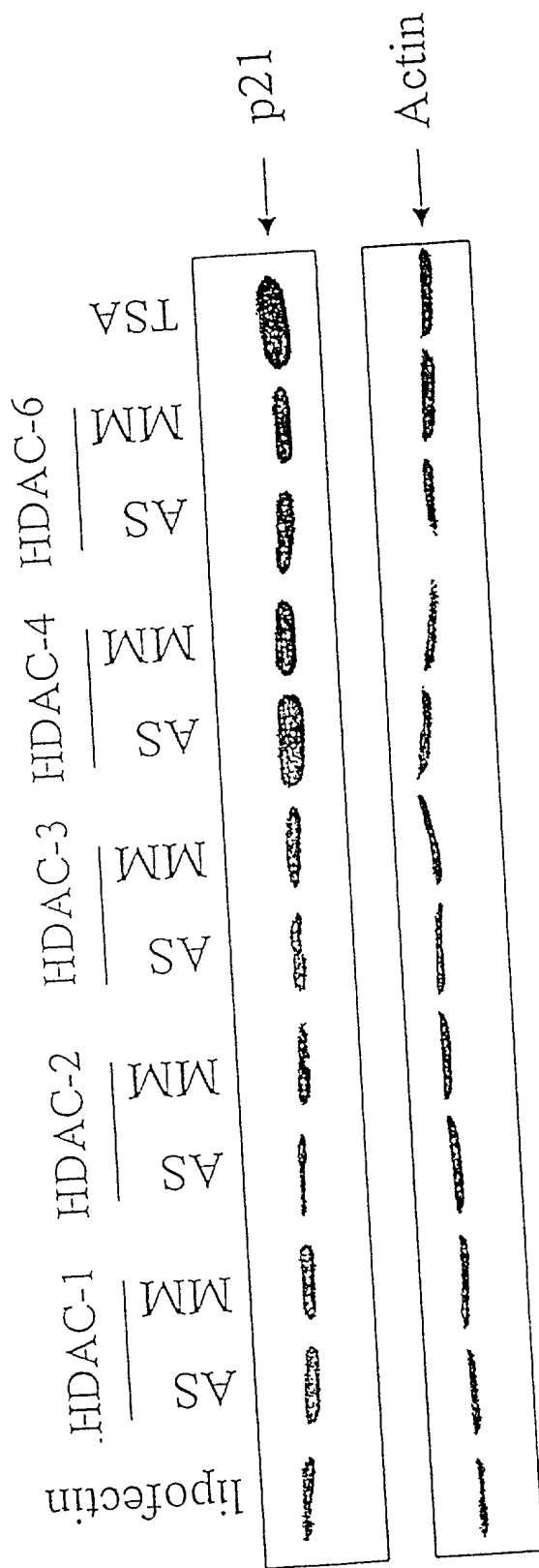


FIGURE 16

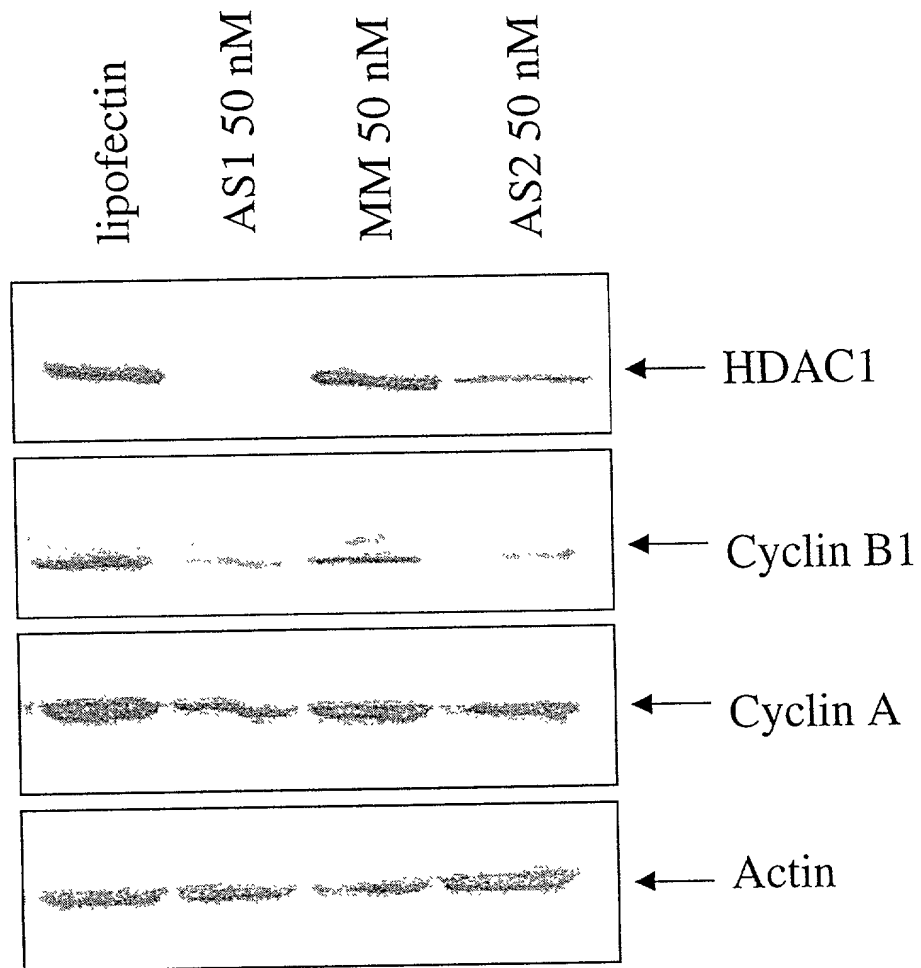


Figure 17

